



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

PAPER  
IN  
MANUFACTURES.

---

SILK FROM SPIDERS.

*The SILVER ISIS MEDAL was presented to Mr. DANIEL B. ROLT, of 21, Friday Street, Cheapside, for Silk from the Garden Spider (*Aranea diadema*); a Specimen of which has been placed in the Society's Repository.*

IN the early part of last century, the attention of the Royal Academy of Sciences at Paris was called to a memoir of M. Bon, of Montpellier, on the silk which he had obtained from the bags in which the common house spider deposits its eggs. These bags were carded and spun into thread; and a few small articles, such as gloves and stockings, were made of it, rather as objects of curiosity than of use. The farther investigation of the subject was committed by the Academy to M. Reaumur, who, after many trials, gave it as his opinion, that this kind of silk could never be worth collecting, on account of the small quantity yielded by each spider, its great inferiority in lustre to that of the silk-worm, the impossibility of making the spiders live in quiet with each other, and the great difficulty of providing them with suitable food.

The subject of Mr. Rolt's experiments has been the garden spider, *Aranea diadema*, the webs of which, in

autumn, are so conspicuous on the surface of shrubs and in other similar situations. On allowing one of these animals to crawl over his hand, he found that it drew a thread with it wherever it went: he likewise, without any difficulty, wound some of this thread over his hand, finding that the spider continued spinning while the thread was winding up.

On this hint, he connected a small reel with the steam-engine of the factory in which he is occupied, and putting it in motion, at the rate of 150 feet per minute, found that the spider would thus continue to afford an unbroken thread during from three to five minutes. The specimen of this silk, which accompanies Mr. Rolt's communication, was wound off from twenty-four spiders in about two hours. Mr. R. estimates its length at 18,000 feet: its colour is white, and its lustre is brilliant, and completely metallic, owing, probably to its great opacity. No attempt has been made by him to combine two or more filaments into one by winding, nor, of course, to form it into thread by throwing.

The thread of the garden spider is so much finer than that of the silk-worm, that the united strength of five of the former is, according to Mr. Rolt, equal only to one of the latter; and, assuming that the weight is in proportion to the strength, and that a spider will yield twice a-year a thread 750 feet long, while that produced by a single silk-worm is 1900 feet, it follows that the produce of one silk-worm is equal to that of 6·3 spiders. Now, as on an average it takes about 3,500 silk-worms to produce a pound of silk, it would take about 22,000 spiders to produce an equal quantity. Besides, spiders are not so easily confined as silk-worms, and whenever two come in contact, a battle ensues, which ends in the destruction of the

weaker one. Spiders kept for silk must, therefore, be each in separate dens or cells; and the apparatus contrived by Mr. Rolt for this purpose, although very ingenious and well adapted to carry on a course of experiments with a hundred or two, would manifestly be wholly inapplicable to any purpose of commercial utility. Mr. Rolt has, however, made some interesting additions to the history of the garden spider, and has obtained the silk in its natural state, exhibiting all its peculiar lustre : his method, likewise, of winding the silk directly from the animal is, to say the least of it, effectual and ingenious.